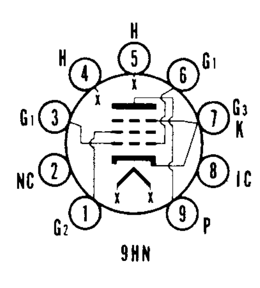


SYLVANIA TYPE 6CZ5 5CZ5

BEAM PENTODE AMPLIFIER



MECHANICAL DATA

Bulb	T-6½
Base	E9-1, Miniature Button, 9-Pin
Outline	6-4
Basing	9HN
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

	5CZ5	6CZ5	
Heater Voltage	4.7	6.3	Volts
Heater Current	600	450	Ma
Heater Warm-up Time[1]	11	11	Seconds
Heater-Cathode Voltage (Design Center Values)			
Heater Negative with Respect to Cathode			
Total D C and Peak		200	Volts Max.
Heater Positive with Respect to Cathode			
D C		100	Volts Max.
Total D C and Peak		200	Volts Max.

DIRECT INTERELECTRODE CAPACITANCES

Grid No. 1 to Plate	0.4 μμf Max.
Input: g1 to (k+h+g3+g2)	6.0 μμf
Output: p to (k+h+g3+g2)	6.0 μμf

MAXIMUM RATINGS (Design Center Values—Except as Noted)[2]

	Vertical Deflection Amp.	Class A_1 Power Amp.	
D C Plate Vo tage	315	350	Volts
Peak Postive Plate Voltage (Abs. Max.)	2200[3]		Volts
D C Grid No. 2 Voltage	285	285	Volts
Peak Negative Grid No. 1 Voltage	250		Volts
Plate Dissipation	10	12	Watts
Grid No. 2 Input	2	2	Watts
Average Cathode Current	40		Ma
Peak Cathode Current	140		Ma
Grid No. 1 Circuit Resistance			
Fixed Bias	0.5	0.1	Megohm
Cathode Bias	1	1	Megohm
Bulb Temperature (At Hottest Point)	250	250	Degrees C

6CZ5, 5CZ5 (Cont'd)

CHARACTERISTICS

Plate Voltage	250 Volts
Grid No. 2 Voltage	250 Volts
Grid No. 1 Voltage	−14 Volts
Plate Current	46 Ma
Grid No. 2 Current	4.6 Ma
Transconductance	4800 μmhos
Plate Resistance (approx.)	73,000 Ohms
Grid No. 1 Voltage for Ib = 100 μa (approx.)	−35 Volts

Instantaneous Plate Knee Values
Eb = 70 Volts, Ec2 = 250 Volts, Ec1 = 0 Volts
Ib = 130 Ma, Ic2 = 16 Ma

TYPICAL OPERATION

AF Power Amplifier	Single Tube Class A_1	Push Pull Class AB_1
Plate Voltage	250	350 Volts
Grid No. 2 Voltage	250	280 Volts
Grid No. 1 Voltage	−14	−23.5 Volts
Peak AF Grid No. 1 Voltage	13	Volts
Peak AF Grid to Grid Voltage[4,5]		47 Volts
Zero Signal Plate Current	46	46 Ma
Maximum Signal Plate Current	48	103 Ma
Zero Signal Grid No. 2 Current	4.6	3 Ma
Maximum Signal Grid No. 2 Current	8	13 Ma
Transconductance	4800	μmhos
Load Resistance	5000	Ohms
Load Resistance (Plate to Plate)		7500 Ohms
Power Output	5.4	21.5 Watts
Total Harmonic Distortion	10	1 Percent

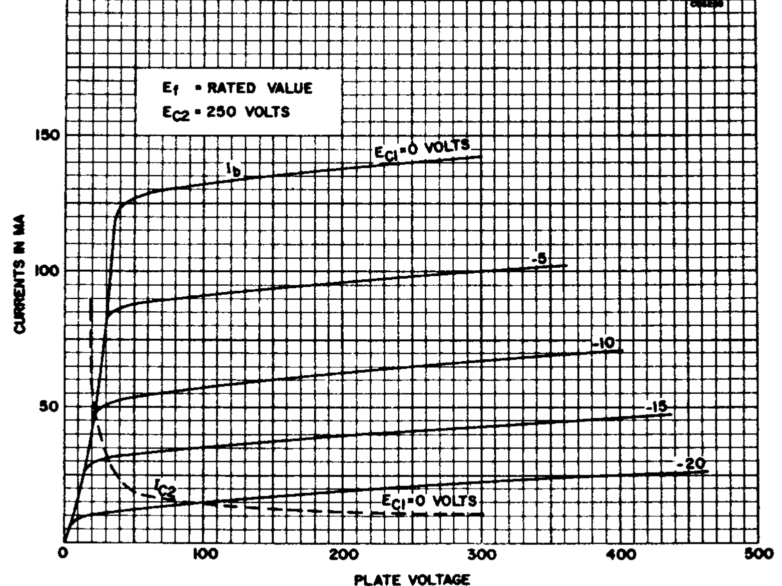
NOTES:

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times rated heater voltage divided by rated heater current.
2. For operation in a 525-line, 30-frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission," the duty cycle of the pulse must not exceed 15% of one scanning cycle.
3. Under no circumstances should this absolute value be exceeded.
4. No Grid No. 1 Current should flow during any part of the input cycle.
5. Low resistance is required by the Grid No. 1 circuit such as transformer or impedance coupling devices.

APPLICATION

The Sylvania Type 6CZ5 is a miniature, beam pentode intended primarily for use as a vertical deflection amplifier or audio amplifier. Types 6CZ5 and 5CZ5 have controlled heater warm-up time for series string operation.





AVERAGE TRANSFER CHARACTERISTICS

